UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00632

November 24, 2003

Mr. Lawrence C. Evans
US Army Corps of Engineers
Portland District
Attn: John Barco
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery and Conservation Management Act Essential Fish Habitat Consultation for the Wirkkala Bank Stabilization Project, Clatskanie River, Columbia County, Oregon (Corps No. 200300231)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed Wirkkala Bank Stabilization Project in Clatskanie River, Columbia County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of Lower Columbia river chinook salmon (*Oncorhynchus tshawytscha)*. As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with non-discretionary terms and conditions that are necessary to minimize the impact of incidental take associated with this action.

This document also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations (50 CFR Part 600).

Please direct any questions regarding this consultation for the Wirkkala bank stabilization project to Jim Turner of my staff in the Oregon Habitat Branch at 503.231.6894.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation
Biological Opinion

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Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Wirkkala Bank Stabilization Project
Clatskanie River, Columbia County, Oregon
(Corps No. 200300231)

Agency: U.S. Army Corps of Engineers, Portland District

Consultation Conducted By: NOAA's National Marine Fisheries Service, Northwest Region

Date Issued: November 24, 2003

Issued by: for Michael R Crouse
D. Robert Lohn
Regional Administrator

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1. INTRODUCTION

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1544), as amended, establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with U.S. Fish and Wildlife Service and NOAA's National Marine Fisheries Service (NOAA Fisheries), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitats. This biological opinion (Opinion) is the product of an interagency consultation pursuant to section 7(a)(2) of the ESA and implementing regulations found at 50 CFR 402.

The analysis also fulfills the essential fish habitat (EFH) requirements under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

1.1 Background and Consultation History

On May 22, 2003, NOAA Fisheries received the U.S. Army Corps of Engineers' (Corps) request for consultation on the Wirkkala Bank Stabilization Project. The Corps determined that the proposed action may affect, but would not likely adversely affect, Columbia River chum salmon and Lower Columbia River chinook salmon, both listed as threatened under the ESA. The Corps acknowledged the presence of Lower Columbia River/Southwest Washington coho salmon, a candidate species. Specific information regarding the scope of the project, the construction methods, consideration of alternatives, or the employment of any conservation measures was absent.

On June 2, 2003, NOAA Fisheries responded to the Corps with a letter of non-concurrence on the Corps' determination of effects. NOAA Fisheries notified the Corps that formal consultation pursuant to section 7(a)(2) of the ESA, and EFH consultation pursuant to section 305(b)(2) of the MSA would be required, and that a biological opinion would be prepared without requesting further information. NOAA Fisheries determined that, to accommodate the Corps and relative to the dearth of information provided, it was necessary to collect available information that describes baseline conditions and provide for the assessment of the effects of the action. NOAA Fisheries completed this step on November 3, 2003, and subsequently informed the Corps (email to Don Borda Corps of Engineers from Jim Turner NOAA Fisheries).

1.2 Proposed Action

The proposed action is the stabilization of 30 linear feet of streambank along the Clatskanie River. The purpose of the action is to stop erosion of the streambank and potential damage to a buried power line and three mobile homes close to the Clatskanie River. The project will entail the placement of 35 cubic yards of rock riprap sized between 8 inches to 3 feet in diameter. The rock will be hauled to the site by truck and dumped over the edge of the bank.

The applicant has indicated that the bank stabilization action would augment other bank stabilization work previous completed. No specific details regarding the nature or extent of the previous bank stabilization action was provided and no indiction that the proposed action was designed with these previous actions in mind.

The Corps indicated that the work would be completed in the dry and provided no details regarding specific conservation measures that would apply.

1.3 Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the proposed action (50 CFR 402.02). The proposed action is on the Clatskanie River near the confluence with the Columbia River and is affected by the daily fluctuation of tides. Flow reversal due to tide changes occur at the proposed project site. The proposed action may affect the streambank and stream hydraulics, and result in the suspension and dispersal of fine sediments. These effects are expected to be localized due to the small extent of the proposed project and the low volume and velocity of flows during the work period that will limit the amount and distribution of fine sediments. For this consultation, NOAA Fisheries defines the action area as the immediate project site and 100 feet upstream and down stream (Figure 1).

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information and Critical Habitat

This Opinion considers the potential effects of the proposed action on the Lower Columbia River (LCR) chinook salmon (*Onchorynchus tshawtscha*). Columbia River chum salmon were originally in the Corps' request for consultation, but are not currently known to occur in the vicinity of the project. Therefore, they are not considered in this Opinion.

Critical habitat for LCR chinook salmon has not been designated. LCR chinook salmon were listed as threatened under the ESA on March 24, 1999 (64 FR 14308), and protective regulations issued on July 10, 2000 (65 FR 42422). The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of LCR chinook salmon. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

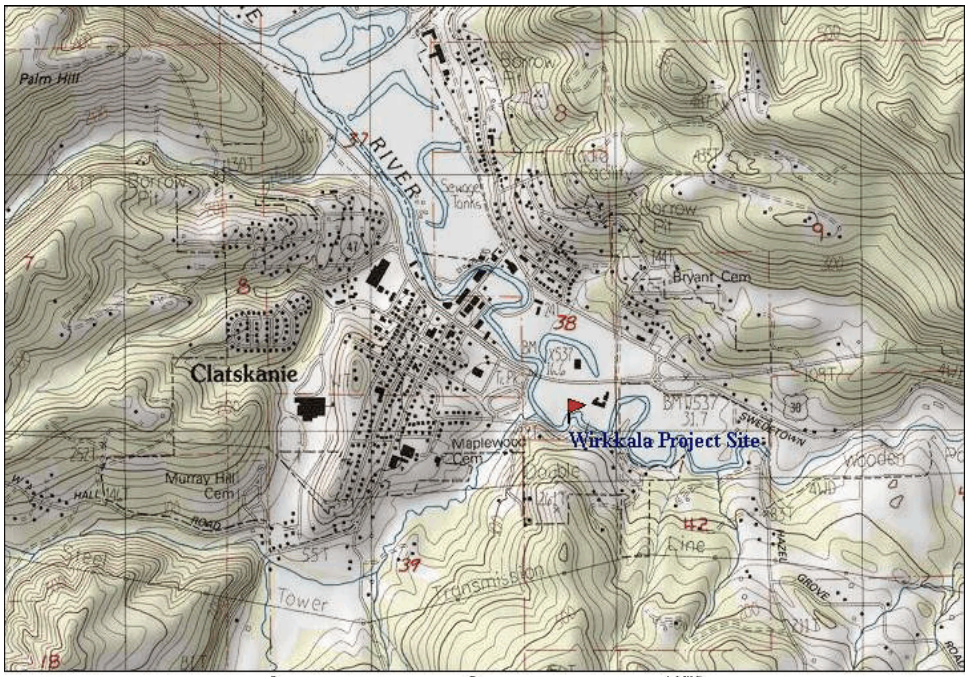

Figure 5. Project Location

Based on the natural history of the LCR chinook salmon, adult and juvenile fish are present and use the habitat within the action area for migration and rearing. Adult chinook migrate upstream to spawning areas within the Clatskanie River during October and November. Spawning occurs and young salmon emerge from the gravels during mid to late winter. The juveniles seek food, cover, and refuge to gain sufficient size for out migration during the late summer at less than one year old. Juvenile chinook salmon utilize edges of streams where food would accumulate and where they can avoid predators. Gravel substrates, overhanging banks with protruding roots, and densely vegetated streambanks and riparian areas contribute to the set of properly functioning conditions that support the ESA-listed fish.

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. While critical habitat for listed LCR chinook salmon is not currently designated, the essential features of critical habitat do occur within the action area that support successful migration, smoltification, and rearing for ESA-listed salmonid fishes: (1) Substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food (primarily juvenile), (8) riparian vegetation, (9) space, and (10) safe passage conditions. The proposed project may affect the following six essential features: Substrate, water quality, water velocity, food, space, and safe passage conditions resulting from the proposed action. Salmon and steelhead without designated critical habitat have the same natural requirements.

2.1.2 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402.02 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations and when appropriate combines them with its Habitat Approach (NOAA Fisheries 1999): (1) Consider the biological requirements of the listed species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; and (4) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species. If so, step 5 occurs. In step 5, NOAA Fisheries may identify reasonable and prudent alternatives for the action that avoid jeopardy, if any exist.

The fourth step above requires a two-part analysis. The first part focuses on the action area and defines the proposed action's effects in terms of the species' biological requirements in that area (*i.e.*, effects on habitat features). The second part focuses on the species itself. It describes the action's effects on individual fish, or populations, or both, and places these effects in the context of the evolutionarily significant unit (ESU) as a whole. Ultimately, the analysis seeks to answer the question of whether the proposed action is likely to jeopardize a listed species' continued existence.

1.2.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution, and genetic diversity. To assess to the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The biological requirements are population characteristics necessary for the subject species to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For actions that affect freshwater habitat, NOAA Fisheries usually describes the habitat portion of a species' biological requirements in terms of a concept called properly functioning condition (PFC). PFC is defined as the sustained presence of natural, habitat-forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation (NOAA Fisheries 1999). PFC, then, constitutes the habitat component of a species' biological requirements. Pacific salmon and steelhead survival in the wild depends upon the proper functioning of ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse effects of current practices. For this consultation, the biological requirements are improved habitat characteristics that would function to support successful adult migration, juvenile rearing and migration, and smoltification.

1.2.4 Environmental Baseline

Watershed Characteristics

The Clatskanie River watershed tends north-south and contains the river and associated tributaries (Figure 2). The underlying geologic formation is composed of flow basalt and marine sedimentary rock of fine sediments intermixed with gravel. Recent alluvial deposits of mixed fine and coarse sediments occur at the lower extent.

The watershed is approximately 60,000 acres (less than 100 square miles) consisting of low elevation terrain and moderately sloped hills and valleys. The Clatskanie River is the dominant stream in the system with six main tributaries entering throughout its length. Most of the drainages in this watershed are constrained within moderately steep valleys and stream terraces. The stream gradients tend to be less than 6% throughout the watershed and are steeper only in the upper-most headwater streams. The underlying geologic formation tends to limit the stream migration and formation of floodplain features. There are two natural barriers (falls) noted for the upper Clatskanie River and on Carcus Creek. The low third of the Clatskanie River tends to grade out in the softer sedimentary rock deposits and within the recently deposited alluvium. It is in the alluvium deposits that the stream demonstrates significant migration with the formation of oxbows, high water channel cut offs, and floodplains.

Habitat Elements

The stream system can be generally described by location in the watershed: Upper, mid-to-lower, and at the confluences with the Columbia River. The upper river and headwater tributaries are more confined with limited floodplains. The streambed is mixed gravels with substantial fines sediments, less than 10 meters wide, with varying amount of pool and riffle habitat. The amount and size of large wood is limited and riparian areas are intermixed conifer and hard woods of medium size. The lower river and tributary junctions are frequently flooded with established streambank terraces and active floodplains. The riparian areas are vegetated with trees and shrubs of young to medium age, with many areas where the woody vegetation has been removed, particularly within the agricultural and urban settings. The streambed remains mixed gravel and fine sediment, typically less than 15 meters wide. Large wood remains sparse. The lowest section of the river merges with the Columbia River in Beaver Slough. This area is tidally-influenced and back watered during high Columbia River flows. The streambed and banks are composed of fine sediments. Floodplains are well-developed, wide, and frequently flooded. The stream tends to meander and oxbow cutoffs are evident. Flows into secondary high water and oxbow channels are restricted and the channel has been simplified and hardened within the agricultural and urban areas. Riparian areas are lacking substantial vegetation, and treed areas are predominantly medium-sized deciduous trees.

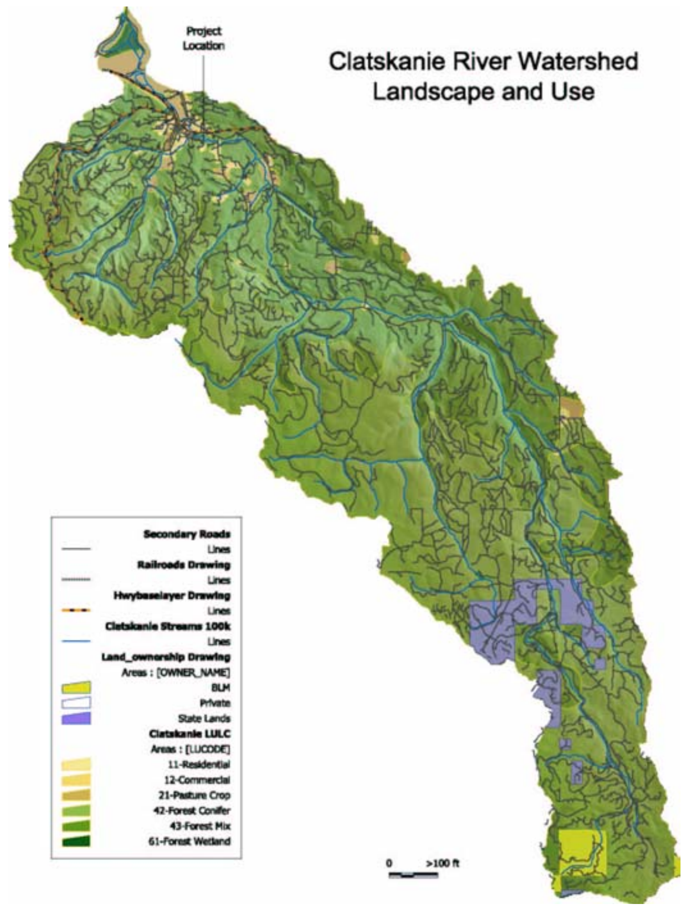

Figure 6.

<u>Fish Use</u>

Anadromous salmonid use within this system is limited to the mainstem Clatskanie River and its major tributaries (Figure 3). Fall chinook and coho salmon are present within this watershed. Particular habitat features important for fall chinook spawning include: (1) Gravel deposits; (2) instream structure such as large wood; and (3) water quality and quantity within spawning areas. Habitat features important for fall chinook salmon rearing include: (1) Water quality and quantity; (2) instream large wood; (3) frequently flooded riparian areas and secondary channels; and (3) intact riparian areas with well-established tree and shrub components. The overall production in this system is low. Typically, fall chinook salmon use the lower gradient and medium-sized steams lower in the watershed with sufficient deposits of gravels to allow burial of eggs to depths of 0.6 meters or greater.

Rearing, feeding, and protection from predation occurs in the pools and along the shallows of the stream edge, and is benefitted from increased habitat complexity and secondary backwater channels. Active stream migration, vegetated riparian areas, and upstream and streambank gravel sources are important features in the lower Clatskanie River that maintain and establish diverse habitat elements that benefit chinook salmon.

Land Use/Land Cover

The watershed is predominantly forested, conifer, and mixed deciduous. There are some agricultural and urban uses in the lower watershed, along the mainstem, and at the confluence of the primary tributaries. The watershed is primarily in private ownership under timber management. It is apparent that 50% or more of the timber lands have been recently harvested. There are significant amounts of road development throughout the watershed and a high number of stream crossings. Agricultural uses are spread throughout the lower watershed in close proximity to the Clatskanie River. There is one primary urban center, Clatskanie, Oregon, in the watershed near the confluence of the Clatskanie River and Columbia River. Given the current conditions and land use, the water quality, stream flows, habitat features, and stream geomorphology likely have been adversely affected and would not be considered properly functioning.

Timber harvest affects the capacity of a watershed to retain or discharge precipitation into the streams. The level of timber harvest, proximity to the streams, and relative slope and character of the soils affects stream flows and concentration suspended sediments and other pollutants. Depending on the level of ground disturbance and the characteristics of current vegetation cover, seasonal flow patterns may be affected. There is no specific information regarding changing flow conditions over time, yet it is reasonable to expect that with the level of apparent harvest and the existing road network, precipitation (primarily winter rains) would result in high surface water flows and greater discharge of fine sediments. Summer flows would likely be reduced where less of the precipitation is stored in the watershed. Where the streams are confined, naturally or artificially, higher winter flows could result in a general degradation of the channel and potential removal of gravel deposits important for salmon spawning and rearing.

The agricultural and urban land use tends to constrain the stream by directly altering the riparian and floodplain areas right up to the stream’s edge. Riparian vegetation is removed and modification of the land surface occurs. These practices can affect surface water flows, erosion potential, and the mitigation of flooding and stream migration processes. Where riparian areas have been significantly altered, there can be a destabilization of the stream channel, where the rate of erosion and potential channel down-cutting can occur. As this occurs in agricultural and urban settings, there is a tendency to armor the bank to stop the erosion. This practice is evident in the lower Clatskanie River.

Water withdrawal for irrigation and municipal and industrial uses would exacerbate low summer flows and increased water temperature. The Clatskanie River is reported to be over-allocated during the summer months, with insufficient flows to satisfy all water rights, and is on the Oregon Department of Environmental Quality list for dissolved oxygen and temperature.

The substantial road network within the watershed can affect surface water flows, sediment discharge, and stream crossing can create fish passage barriers. Most of the streams within the watershed are within close proximity to roads, many crossing the Clatskanie River and main tributary streams.

1.2.5 Analysis of Effects

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996).

The proposed action has the potential to cause the following impacts to LCR chinook salmon: (1) Construction effects, (2) habitat effects, (3) stream process effects, and (4) streambank modification.

<u>Construction Effects</u>
Construction activities associated with streambank protection may facilitate the transport of sediment into the stream channel and increase turbidity by precipitation run-off and/or by high stream flows. Sediment has the potential to degrade salmonid spawning and incubation habitat, and fine, redeposited sediment has the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce cover for juvenile salmonids (Bjornn and Reiser 1991).

The effects of suspended sediment and turbidity on fish are reported in the literature as ranging from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the season, frequency, and the duration of exposure (not just the TSS concentration).

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed moving laterally and downstream in order to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, except when the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). However, a potentially positive reported effect of turbidity is that it provides refuge and cover from predation (Gregory and Levings 1988).

Fish that remain in turbid waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade-off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and magnitude of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids appear to be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research indicates that chronic exposure can cause physiological stress responses which can increase maintenance energy, and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

At moderate levels, turbidity has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish. Turbidity might also interfere with feeding (Spence *et al.* 1996). Newly-emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill-flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine, redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991).

Larger juvenile and adult salmon appear to be little affected by ephemerally-high concentrations of suspended sediments that occur during most storms and episodes of snowmelt. However, other research demonstrates that feeding and territorial behavior can be disrupted by short-term exposure to turbid water. Localized increases of turbidity during in-water work will likely displace fish in the project area and disrupt normal behavior. Therefore, there is a low probability of direct mortality from turbidity associated with the proposed activities because the turbidity should be localized and brief, much of the work will occur “in the dry”, and juvenile salmon are not expected to occur within the project area during the time of the proposed construction (either the preferred in-water work window of July 15 to September 15 or “in the dry” during low tides in November and December before the high winter flows).

Habitat Effects

The use of rock riprap to stabilize streams can substantially alter both site conditions and adjacent streambed and streambank habitat, thereby significantly reducing suitability of the habitat for salmonids. Although rock riprap can provide some habitat features used by salmonids, such as inter-rock space, there is increasing evidence that in comparison to natural banks, fish densities at rock riprap banks are reduced (Schmetterling 2001). The use of rock riprap to stop bank erosion by its nature tends to change streambed and streambank characteristics, and can effectively change the physical processes that maintain a dynamic equilibrium of stream system form and function.

A comparative review of effects of riprap (Schmetterling 2001) has indicated that fish densities at stream locations with riprap banks are reduced as compared to areas with natural banks. This is true even when compared to actively eroding cut banks (Michny and Deibel 1986, Schaffter *et al.* 1983). The use of riprap either results in site characteristics that limit suitability for fish at various life stages (Beamer and Henderson 1998, Peters *et al.* 1998, Li *et al.* 1984, North *et al.* 2002), or perpetuates detrimental conditions that may restrict or limit fish production, such as channelizing the stream (Knudson and Dilley 1987). Even when rock may contribute to habitat diversity within the alluvial stream system, at the project site habitat complexity is simplified and beneficial biological response is of limited duration with greater variability (Schmetterling 2001, Beamer and Henderson 1998, Peters *et al.* 1998, Andrus *et al.* 2000). The effect of rock riprap varies with fish species and age class. Chinook salmon are effectively displaced from riprap sites, although there is some limited occurrence of chinook salmon associated with rock barbs during spring flows. (Beamer and Henderson 1998, Peters *et al.* 1998, Li *et al.* 1984, North *et al.* 2002). Rainbow trout (and by inference, steelhead) were not as affected as chinook salmon, showing a limited preference for rip-ap and rock barbs (Beamer and Henderson 1998, Peters *et al.* 1998, Li *et al.* 1984, Andrus *et al.* 2000). Decreases in juvenile fish densities were more evident than adults, including juvenile rainbow trout (Beamer and Henderson 1998, Li *et al.* 1984). Rock riprap can also result in increased densities of predatory fish (Knudson *et al.* 1987, Andrus *et al.* 2000, North *et al.* 2002).

The use of rock riprap effectively changes the localized hydraulics, substrate, and available food and cover for fish at stream sites where it is used. There is an indication that the flow regimes created by rock riprap significantly disrupt juvenile fish. Juvenile fish are associated with lower velocity flows at the streambed interface, holding for food, finding potential hiding places in the gravels, and/or avoiding larger predatory fish in deeper waters. Rock riprap can disrupt flows, reduce food delivery, and create difficult swimming for smaller fish (Michny and Deibel 1986, Schaffter *et al.* 1983). During higher spring flows, juvenile chinook salmon were found behind spur dikes (Li *et al.* 1984, Andrus *et al.* 2000).

These features can provide a simplified flow modulator for a limited period of time. Complex large wood associated with banklines, even at riprap banks, demonstrate more flow modulation over greater time frames at different water elevations, as well as providing the small intricate space for juveniles to escape predation (Peters *et al.* 1998, Beamer *et al.* 1998). In general, juveniles tend to hug the banks during winter and spring (seeking refuge from higher flows and food and cover) and tend to move to the main channel during summer. Adults tend to be more oriented to the deep channel, and utilize eddy lines and flow deflectors (Andrus *et al.* 2000, Li *et al.* 1984). Where more natural bankline features occur, and shallow water gravel benches or large complex wood deposits have been either maintained or incorporated into riprap, fish densities are improved (Beamer and Henderson 1998, Peters *et al.* 1998, Michny and Deibel 1986, Schaffter *et al.* 1983).

<u>Stream Process Effects</u>
Riprap not only modifies the streambed and streambank habitat, but as its primary purpose, it stops natural stream processes that maintain a functioning stream system. By "fixing" the stream, rock riprap limits habitat formation and transitions that result from dynamic stream processes. This reduces the likelihood that adverse effects from riprap would be mitigated over time. Stream migration, channel changes, flooding, ground water interchange, gravel supply, and large wood supply are significant elements of natural stream processes that can be impacted by riprap. It is generally understood that vegetated stream edges, floodplains, and riparian areas contribute to supporting fish and the stream system as a whole. This is true of the subsurface hyporheic zone (Bolton and Shellberg 2001). Stream erosion and adjustments are natural processes for which fish have adapted. Irregular disturbances, man-caused or otherwise, are part of the process, and the relative stream response to these disturbances can be predicable in some cases. A typical channel degradation or significant alteration is followed by formation over time of various stream system features that existed before the alteration, including floodplain and stable vegetate hillslopes and riparian areas. (Bolton and Shellberg 2001). Stabilizing banks with rock riprap fixes the stream in place, and limits any adjustment processes and/or formation of natural stream features.

The placement of rock at this site will "fix" the stream in place in this area. This area has been extensively diked and the relative small addition of material resulting from this project will not result in a substantial change in stream channel processes. Adult fish migration is affected by stream obstructions, water quality, and stream flow. Active steam channel migration typically will maintain a deep water channel feature and provide for the upstream movement of adult salmon. The proposed action would tend to fix the location of the channel resulting localized changes to the channel form, deepening some areas and shallowing other areas. The proposed action is not expected to directly or indirectly block the stream channel or effect flows to the extent to impair the upstream movement of adult salmon.

Currently, the riparian area at the project site is used for urban residences, mobile homes, with all native trees and shrubs removed. Placing the rock only in the scour hole will avoid impacts to existing vegetation in the project area.

Juvenile salmon rear within the project area and emigrate past the project site during late winter and early spring. Juvenile salmonids require food, cover, and refuge from high velocity flows. The channel migration at the project site result in varying water depths, varying size in stream bed substrate, and stream habitat features such as small pools and cover from root or large wood. In-channel structure is formed from deposits of large wood or log jams and roots or fallen trees from riparian area. Juvenile salmon will use these habitats for feeding. Although the fine sediments associated with the project's location do not typically produce substantial numbers of invertebrates used by salmon, terrestrial and aquatic invertebrates can accumulate at this location from riparian or upstream sources. Shallow water areas and small structural elements that create localized eddy currents can provide space for juvenile to hide and avoid predation. During high water events, flooding of stream terraces can introduce new food sources and provide the shallow water low velocity space for juvenile refuge. The proposed action will limit formation of channel features and habitat used by juveniles for feeding, hiding, and refuge. The placement of rock riprap can increase channel scour, limit active channel forming process and simplify available habitat during high water. Rock riprap does add structure with openings between rocks. Larger rocks provide bigger spaces that may be used by salmon for feeding and hiding. The current channel has been affected by local land uses that have restricted stream migration. The proposed action will not significantly add to, or further restrict, stream processes and diversity and development of complex stream channel habitat.

Juvenile salmon will emigrate out of the Clatskanie River as smolts during late summer to early fall. Stream flows are increasing with seasonal rain. The out-migration of juvenile salmon requires unobstructed and connected channels and surface waters. Active channel migration and erosion tends to maintain continuous connection between channel features, including the high water channels and oxbow lakes. Where channel migration has been impaired, high water channels can become isolated and channel connections may be lost and the main channel may become blocked by the streambank stabilization materials. The proposed action is in close proximity to remnant oxbow lakes/channels. Hardening the bank is not expected to further restrict flows into or out of these channels or directly impair the movement of juveniles within the main channel.

<u>Streambank Modification</u>

Currently the streambank has been simplified through the removal of riparian vegetation and the bank is tending vertical. Hardening the bank will limit potential for establishing vegetative structure and diverse pool habitat at the edge of the bank. However, the proposed action would add some structure and roughness to the stream along the edge and create space for juvenile salmon feeding and hiding.

2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater effects to listed species than presently occurs. The action area includes significant tracts of private and state lands. Land use on these non-federal lands include rural development, agricultural, commercial-industrial, and commercial forestry. NOAA Fisheries does not consider the rules governing timber harvests, agricultural practices, and rural development on non-federal lands within Oregon to be sufficiently protective of watershed, riparian, and stream habitat functions to support the survival and recovery of listed species. Therefore, these habitat functions likely are at risk due to future activities on non-federal forest lands within the basin.

Non-federal activities within the action area are likely to increase based on previous trends of 19% increase of population in Columbia County, Oregon from 1990 to 2000 (US Census Data). Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, increasing as population density rises. As the human population in the state continues to grow, demand for actions similar to the subject project likely will continue to increase as well. Each subsequent action may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

2.1.7 Conclusion

NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of LCR chinook salmon. In reaching this conclusion, NOAA Fisheries used the best available scientific and commercial data to apply its jeopardy analysis, and analyzed the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. The proposed action is reasonably certain to cause short-term degradation of habitat due to reductions in water quality. The proposed action also is reasonably certain to disrupt the behavior of listed salmonid fishes by increasing suspended sediments or displacing fish at the project site. The incorporation of conservation measures, completing the majority of the work in the dry, into the proposed action likely would minimize adverse effects to ESA-listed species. Whereas the proposed action does not contribute to PFC now or in the future, based on NOAA Fisheries' analysis, the proposed action is not likely to impair properly functioning habitat, appreciably reduce the functioning of already impaired habitat, or retard the long-term progress of impaired habitat toward proper functioning condition essential to the long-term survival and recovery of the subject species at the population or ESU scale.

2.1.8 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitats, or to develop additional information. No conservation recommendations are being proposed.

2.1.9 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

2.2.1 Amount or Extent of Take

NOAA Fisheries anticipates that the proposed action covered by this Opinion is reasonably certain to result in incidental take of listed species resulting from construction of the project. Effects of actions such as these are largely unquantifiable in the short term, but are expected to be largely limited to take in the form of harm.

Even though NOAA Fisheries expects some low level of incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species themselves. In these instances, NOAA Fisheries designates the expected level of incidental take in terms of the extent of take allowed. Therefore, NOAA Fisheries limits the extent of take to increased suspended sediment resulting from construction and modification of 30 feet of streambank. Incidental take occurring beyond the action area is not authorized by this consultation.

2.2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The Corps has the continuing duty to regulate the activities covered in this incidental take statement. If the Corps fails to require the applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. NOAA Fisheries believes that activities carried out in a manner consistent with these reasonable and prudent measures, except those otherwise identified as exclusions, will not necessitate further site-specific consultation. Activities which do not comply with all relevant reasonable and prudent measures will require individual consultation.

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize the amount or extent of take of listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also avoid or minimize adverse effects to designated critical habitat.

The Corps shall:

1. Ensure completion of a comprehensive monitoring and reporting program to confirm this Opinion is meeting its objective of minimizing take from permitted activities.

2. Avoid or minimize incidental take from construction-related activities by applying permit conditions that require completion of survey, exploration, construction, operation and maintenance actions with minimum harm to aquatic and riparian systems, and provide compensatory mitigation to offset any long-term adverse effects.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary and are applicable to more than one category of activity. Therefore, terms and conditions listed for one type of activity are also terms and conditions of any category in which they would also minimize take of listed species or their habitats.

1. To implement reasonable and prudent measure #1 (monitoring), the Corps shall ensure that:

    a. <u>Implementation monitoring report required</u>. The permittee submits an implementation monitoring report to the Corps and to NOAA Fisheries, at the address below, within 120 days of completing all in-water work. The monitoring report will describe the permittee's success meeting his or her permit conditions.

        i. If the in-water work will not be completed by January 31 following the year during which consultation was completed, the permittee shall submit a report to theCorps and to NOAA Fisheries by January 31 saying why the in-water work was not complete.

        ii. If the monitoring report or explanation of why work was not completed is not received by the Corps and NOAA Fisheries by January 31, NOAA Fisheries may consider that a modification of the action that causes an effect on listed species not previously considered and causes the incidental take statement of the Opinion to expire.

iii. Submit a copy of the monitoring report or explanation of why work was not completed to the Oregon Office of NOAA Fisheries at the address below:

Oregon State Director
Habitat Conservation Division
National Marine Fisheries Service
Attn: 2003/00632
525 NE Oregon Street
Portland, OR 97232

b. Implementation monitoring report contents. Each monitoring report will include the following information.

i. Project identification
  (1) Permittee name, permit number, and project name.
  (2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
  (3) Corps contact person.
  (4) Starting and ending dates for work completed.

ii. Habitat conditions. Photos of habitat conditions at the project and any compensation site or sites, before, during, and after project completion.[1]
  (1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
  (2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Project data.
  (1) Work cessation. Dates work ceased due to high flows, if any.
  (2) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.
  (3) Site preparation.
    (a) Total cleared area – riparian and upland.
    (b) Total new impervious area.

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[1] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(4) Streambank protection.
   (a) Type and amount of materials used.
   (b) Project size
      (i) one bank or both
      (ii) width
      (iii) linear feet.
(5) Site restoration. Photo or other documentation that site restoration performance standards were met.

c. Reinitiation contact. To reinitiate consultation, contact the Oregon Habitat Branch of NOAA Fisheries, at the address above.

2. To implement reasonable and prudent measure #2 (construction-related activities), the Corps shall:

a. Site restoration. Ensure that the permittee successfully completes site restoration, and compensatory mitigation for long-term adverse effects (if any) by including the following information as part of each permit issued under this Opinion, and prepare and carry out a written site restoration plan as necessary to ensure that all streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows:

i. General considerations.
   (1) Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.
   (2) Revegetation. Replant each area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs and trees. Noxious or invasive species may not be used.
   (3) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.
   (4) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.
   (5) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. <u>Plan contents</u>. Include each of the following elements.

(1) <u>Responsible party</u>. The name and address of the party(s) responsible for meeting each component of the site restoration requirements, including providing and managing any financial assurances and monitoring necessary to ensure restoration success.

(2) <u>Goals and objectives</u>. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(3) <u>Performance standards</u>. Use these standards to help design the site restoration plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.

(c) If areas with past erosion are present, they are completely stabilized and healed.

(d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.

(e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.

(f) Vegetation structure is resulting in rooting throughout the available soil profile.

(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.

(h) High impact conditions confined to small areas necessary access or other special management situations.

(i) Streambanks have less than 5% exposed soils with margins anchored by deeply rooted vegetation or coarse-grained alluvial debris.

(j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.

(4) <u>Work plan</u>. Include a written work plan as part of the site restoration plan with sufficient detail to include a description of the following elements, as applicable.

(a) Boundaries for the restoration area.

(b) Restoration methods, timing, and sequence.

(c) Water supply source, if necessary.

(d) Woody native vegetation appropriate to the restoration site.[2] This must be a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees. This may include allowances for natural regeneration from an existing seed bank or planting.

(e) A plan to control exotic invasive vegetation.

(f) Site management and maintenance requirements.

(5) Five-year monitoring and maintenance plan.

(a) A written schedule to visit the restoration site annually for 5 years or longer as necessary to confirm that the performance standards are achieved. Despite the initial 5-year planning period, site visits and monitoring will continue from year-to-year until theCorps certifies that site restoration performance standards have been met.

(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).

(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

b. Compensatory mitigation. To compensate for lost streambank habitat, the applicant shall plant willow stakes in the riprap interstices.

c. Timing of in-water work. Complete all work below the bankfull elevation between July 15 to September 15 of each year, or in the dry during low tides prior to winter high flow events.

d. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

e. Heavy Equipment. Restrict use of heavy equipment as follows:

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally sized, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on-site.

[2] Use references sites to select vegetation for the mitigation site whenever feasible. Historic reconstruction, vegetation models, or other ecologically-based methods may also be used as appropriate.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, water body or wetland, unless otherwise approved in writing by NOAA Fisheries.

(3) Inspect all vehicles operated within 150 feet of any stream, water body or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by Corps or NOAA Fisheries.

(4) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(5) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.

f. <u>Site preparation</u>. Conserve native materials for site restoration.

i. If possible, leave native materials where they are found.

ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.

iii. Stockpile any large wood[3], native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

3. MAGNUSON-STEVENS ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

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[3] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs.

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries' EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities. The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of federally-managed Pacific salmon: Chinook (*Onchorynchus tshawtscha*), coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC

1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

3.3 Proposed Actions

The proposed action and action area are detailed above in section 1.3 of this Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of chinook salmon (*O. tshawtscha*) and coho salmon (*O. kisutch*.).

3.4 Effects of Proposed Action

As described in detail in this Opinion, the proposed action may result in short- and long-term adverse effects to a variety of habitat parameters. These adverse effects are:

- The simplification of the channel habitat and halting stream migration and habitat forming process in the future.

- The hardening of the streambank and simplifying the habitat at the stream channel and streambank edge such as undercut banks and further limiting development of streambank vegetation.

- Limiting the development of complex riparian vegetation along the bank and restricting the interaction of stream and riparian area.

- The increase in suspended sediments and turbidity during project construction.

3.5 Conclusion

NOAA Fisheries concludes that the proposed action will adversely affect designated EFH for chinook salmon (*O. tshawytscha*) and coho salmon (*O. kisutch*.).

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. NOAA Fisheries believes that the limited conservation measures do not address the adverse impacts to EFH described above. However, the terms and sonditions outlined in section 2.2.3 are generally applicable to designated EFH for chinook and coho salmon, and address these adverse effects. Consequently, NOAA Fisheries incorporates them here as EFH conservation measures.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The Corps must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

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